

(i) CLAIM OR CLAIMS.

1. A method for enriching air with an air treatment agent (12), especially for the disinfection of air, wherein said air treatment agent (12) is introduced into the air and evaporated from a liquid phase, wherein the proportion of treatment agent in the air per m³ of air is between 0.1 and 0.00001 ml, preferably between 0.01 and 0.0001 ml.

2. The method according to claim 1, which comprises the following steps for introducing the air treatment agent (12) into the air:

- feeding the air treatment agent (12) from a storage chamber (10) into a vortexing chamber (16) through which air is flowing;
- adjusting the supplied amount of air and the supplied amount of air treatment agent (12) to achieve a proportion of treatment agent of between 0.1 and 0.00001 ml, preferably between 0.01 and 0.0001 ml, per m³ of air per hour; and
- introducing the mixture of air and vaporized air treatment agent (12) into a room to be treated.

3. The method according to claim 2, characterized in that the ratio of the amount of air supplied to the amount of air treatment agent (12) supplied is between 45%/55% and 30%/70%, preferably between 42%/58% and 35%/65%.

4. The method according to claim 2 or 3, wherein the mixture of air and air treatment agent (12), before being introduced into the space to be treated, is conducted through an intermediate chamber (38) which is separated from the vortexing chamber (16) by a retaining disk (36).

5. The method according to any of claims 2-4, wherein excess air treatment agent (12) is recirculated into the storage chamber (10).

6. The method according to any of claims 1-5, wherein the proportion of air treatment agent in the air is ≤ 100 ppt, preferably ≤ 10 ppt.

7. The method according to any of claims 1-6, wherein an antimicrobial composition is used as said air treatment agent (12).

8. The method according to claim 7, wherein said antimicrobial composition contains one or more GRAS flavoring agents or their derivatives.

9. A device for enriching air with an air treatment agent (12), especially for the disinfection of air, comprising:

a storage vessel (10) for receiving liquid air treatment agent (12);

a vortexing chamber (16) to which liquid air treatment agent (12) is supplied; and

a means (24) for generating a current of air in said vortexing chamber (16), so that vortexing of the liquid treatment agent (12) is effected by the current of air (30, 34), and a mixture of air and vaporized air treatment agent (12) exits from the vortexing chamber (16).

10. The device according to claim 9, characterized in that the ratio of the amount of air supplied to the vortexing chamber (16) to the amount of air treatment agent (12) supplied to the vortexing chamber (16) is between 45%/55% and 30%/70%, preferably between 42%/58% and 35%/65%.

11. The device according to claim 9 or 10, characterized in that air inlets (32) are provided in the bottom region of the vortexing chamber (16) through which excess air treatment agent (12) can drain in a direction opposite to that of the air flow.

12. The device according to claim 11, characterized in that said vortexing chamber (16) and said storage chamber (10) have a common separation wall in which said air inlets (32) are provided.

13. The device according to any of claims 11-12, characterized in that said air inlets (32) are slots, especially radially arranged slots.

14. The device according to any of claims 11-12, characterized in that bottom region in which the air inlets (32) are provided is funnel-shaped.

15. The device according to any of claims 10-14, characterized in that an intermediate chamber (38) is provided downstream of the vortexing chamber (16), which intermediate chamber is separated from the vortexing chamber (16) by a retaining disk (36) which has transfer apertures.

16. The device according to any of claims 10-14, characterized in that a particle filter (54) and/or a bacterial filter (56) and/or a moisture filter (58) are inserted upstream of the air inlets (32).

17. The device according to any of claims 10-16, characterized in that a pressure generating means (60) is provided downstream to increase the pressure of the exiting mixture of air and vaporized air treatment agent (12).

18. The device according to claim 17, characterized in that a lance (68) is connected to said pressure generating means (60) in order to introduce the mixture of air and vaporized air treatment agent (12) into food packages.

19. The device according to any of claims 10-18, characterized in that the mixture of air and vaporized air treatment agent (12) supplied to the space to be treated contains between 0.1 and 0.00001 ml, preferably between 0.01 and 0.0001 ml, of air treatment agent (12) per m³ of air per hour.

20. The device according to any of claims 10-19, characterized in that the proportion of air treatment agent in the mixture of air and air treatment agent supplied to the space to be treated is ≤ 100 ppt, preferably ≤ 10 ppt.

21. The device according to any of claims 10-20, characterized in that an antimicrobial composition is used as said air treatment agent (12).

22. The device according to claim 21, characterized in that said antimicrobial composition contains one or more GRAS flavoring agents or their derivatives.

(i) C L A I M S
(amended)

1. A method for enriching air with an air treatment agent (12), especially for the disinfection of air, wherein said air treatment agent (12) is introduced into the air and evaporated from a liquid phase, wherein said introducing the air treatment agent (12) into the air comprises the following steps:

- feeding the air treatment agent (12) from a storage chamber (10) into a vortexing chamber (16) through which air is flowing, in which air flows through said air treatment agent;
- adjusting the supplied amount of air and the supplied amount of air treatment agent (12) to achieve a proportion of treatment agent in the air of between 0.1 and 0.00001 ml, preferably between 0.01 and 0.0001 ml, per m³ of air per hour; and
- introducing the mixture of air and vaporized air treatment agent (12) into a room to be treated.

2. The method according to claim 1, characterized in that the ratio of the amount of air supplied to the amount of air treatment agent (12) supplied is between 45%/55% and 30%/70%, preferably between 42%/58% and 35%/65%.

3. The method according to claim 1 or 2, wherein the mixture of air and air treatment agent (12), before being introduced into the space to be treated, is conducted through an intermediate chamber (38) which is separated from the vortexing chamber (16) by a retaining disk (36).

4. The method according to any of claims 2-3, wherein excess air treatment agent (12) is recirculated into the storage chamber (10).

5. The method according to any of claims 1-5, wherein the proportion of air treatment agent in the air introduced into the space to be treated is ≤ 100 ppt, preferably ≤ 10 ppt.

6. The method according to any of claims 1-5, wherein an antimicrobial composition is used as said air treatment agent (12).

7. The method according to claim 6, wherein said antimicrobial composition contains one or more GRAS flavoring agents or their derivatives.

8. A device for enriching air with an air treatment agent (12), especially for the disinfection of air, comprising:

a storage vessel (10) for receiving liquid air treatment agent (12);

a chamber (16) to which liquid air treatment agent (12) is supplied; and

a means (24) for generating a current of air in said chamber (16), characterized in that said chamber (16) is designed as a vortexing chamber, so that vortexing of the liquid treatment agent (12) is effected by the current of air (30, 34) which flows through the air treatment agent, and a mixture of air and vaporized air treatment agent (12) exits from the vortexing chamber (16).

9. The device according to claim 8, characterized in that air inlets (32) are provided in the bottom region of the vortexing chamber (16) through which excess air treatment agent (12) can drain in a direction opposite to that of the air flow.

10. The device according to claim 9, characterized in that said vortexing chamber (16) and said storage chamber (10) have a common separation wall in which said air inlets (32) are provided.

11. The device according to any of claims 9-10, characterized in that said air inlets (32) are slots, especially radially arranged slots.

12. The device according to any of claims 9-11, characterized in that bottom region in which the air inlets (32) are provided is funnel-shaped.

13. The device according to any of claims 8-12, characterized in that an intermediate chamber (38) is provided downstream of the vortexing chamber (16), which intermediate chamber is separated from the vortexing chamber (16) by a retaining disk (36) which has transfer apertures.

14. The device according to any of claims 8-12, characterized in that a particle filter (54) and/or a bacterial filter (56) and/or a moisture filter (58) are inserted upstream of the air inlets (32).

15. The device according to any of claims 8-14, characterized in that a pressure generating means (60) is provided downstream to increase the pressure of the exiting mixture of air and vaporized air treatment agent (12).

16. The device according to claim 15, characterized in that a lance (68) is connected to said pressure generating means (60) in order to introduce the mixture of air and vaporized air treatment agent (12) into food packages.

17. Use of the device according to any of claims 8-16 for performing the method according to any of claims 1-7.